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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,902	03/31/2004	Eberhard Schroder	MOS01 P-108	7605
28101	7590	05/05/2005	EXAMINER	
VAN DYKE, GARDNER, LINN AND BURKHART, LLP			HIRUY, ELIAS	
2851 CHARLEVOIX DRIVE, S.E.			ART UNIT	
P.O. BOX 888695			PAPER NUMBER	
GRAND RAPIDS, MI 49588-8695			2837	

DATE MAILED: 05/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/814,902		SCHRODER ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Elias B. Hiruy		2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03/31/2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

**Priority**

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file. Applicant is advised to submit a certified copy of the priority document in order to receive foreign priority.

**Information Disclosure Statement**

2. An initialed and dated copy of Applicant's IDS form 1449 is attached to the instant Office action. The examiner has not considered documents without the English translated versions.

**Drawings**

3. The drawings are objected to because each block must be clearly labeled. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet"

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pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Figure 1 shows a block diagrams that are designated by numbers only. Each block must be labeled by it functional name. The labeling of the blocks by numbers only makes the drawing unclear and difficult to understand applicant's invention. Correction is requested.

**Claim Rejections - 35 USC § 103**

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant admission (Germany patent application DE 1 531 307 A1) in view of Yutkowitz (U.S. 6,281,650) further in view of Bock et al (U.S. 5,719, 480).

Regarding claim 1, applicant own admission teaches about an articulated chain that is passed across a polygonal chain wheel with non-uniform pitch, said chain wheel driven by an electric motor (see background of the invention section page 1 lines 12-20).

However, applicant admission fails to teach a method that is used to superimpose a dampening actuating variable on the velocity of the chain wheel as thought by this application.

Yutkowitz, on the other hand, teaches about method for stabilizing a motor in a motion control system to impede the formation of mechanical resonance and oscillation on the movable part (column 10, lines 54-67) (408, figure 10). Said method comprises superimposing a dampening actuating variable on the velocity of the movable part (408) wherein the dampening actuating variable produces a change in the velocity of the machine axis so as to impede formation of a mechanical resonance and oscillation. The dampening actuating variable is at least one chosen from a frequency variable, in continuous time domain (column 25, lines 48-51), and a constant variable, in discrete time domain (column 26, lines 9-16), (i.e. periodic variable).

Accordingly, it would have been obvious for one ordinary skill in the art to improve the chain wheel system discussed in applicant admission by Yutkowitz in order to control the chain wheel since Yutkowitz system will run the chain wheel in a stable manner.

However, the combination of applicant admission and Yutkowitz fails to teach about a dampening actuating variable that includes a stochastic variable.

On the other hand, Bock et al teaches about a parametric control device that utilizes a stochastic variable in order to control a motor (column 10, lines 48-59).

Thus, it would have been obvious for one ordinary skill in the art to incorporate the stochastic variable into the combination of applicant admission and Yutkowitz system since a method that implements stochastic variable control

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is more robust and has increased adaptability in a continuously changing situation.

Regarding claim 2, Yutkowitz system shows a PI compensator (3, figure 1) (i.e. electronic damper) that is used to actuate the electric motor (column 25, lines 1-9, and column 26 lines 53-59).

Regarding claim 3, Yutkowitz shows how the nominal rotary velocity  $V_c(S)$  (1, figure 1) (i.e. speed) of the machine movable part is supplied to the electronic damper as a first input variable and an actual angel (feedback signal 12, figure 1 and angle feedback figure 10) of the machine movable part as a second input variable, wherein the dampening actuating variable is computed in said electronic damper from the first and second input variables (3, figure 1), the dampening actuator variable being transferred to the electric motor in the form of dampened rotary velocity  $V(S)$  (14, figure 14).

Regarding claim 4, Yutkowitz discloses how the torque control loop (13, figure 1) dynamics uses the detected actual angel to calculate the torque  $T(S)$  ( $T = F \cdot L$ ) (column 11 lines 60-68). Thus, inherently calculates the dampening force.

Regarding claim 5, 11, 13, and 15, Yutkowitz shows a method used to detect the effect of mechanical resonance and oscillation building up from encoder (406, figure 10) (column 27, lines 16-51). Further, the velocity of the movable part 408 is adjusted based on the information gathered from the encoder 406.

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In regards to claim 6-10, 12, 14, and 16, Yutkowitz shows a control block diagram that has all the functionalities of a velocity pilot control unit and is configured as one. Further, the control block records different operating conditions to be applied based on the operating condition (column 23, lines 60-67, and column 24, lines 1-19). Thus, if the motor is driving a constant load the control part of Yutkowitz will apply the respective program stored in memory (column 24 lines 31-58).

6. Claims 17-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant admission in view of Yutkowitz (U.S. 6,281,650) further in view of Bock et al (U.S. 5,719, 480).

Regarding claim 17, applicant own admission teaches about a chain led across a polygonal chain wheel with electric motor acting on the chain wheel (see background of the invention page 1 lines 12-20).

However, applicant admission fails to teach about an electronic damper hooked up in front of the electric motor, said electronic damper controlling said electric motor including superimposing a dampening actuating variable on the velocity of said chain wheel.

Moreover, Yutkowitz teaches about an electronic damper (26, figure 1 and 412, figure 10) hooked up in front of the electric motor (404, figure 10), said electronic damper controlling said electric motor including superimposing a dampening actuating variable on the velocity of said movable part (column 10, lines 54-67)(408, figure 10). The dampening actuating variable produces a change in the chain velocity so as to impede formation of a resonance oscillation,

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wherein the dampening actuation variable is at least one chosen from, in continuous time domain (column 25, lines 48-51), and a constant variable, in discrete time domain (column 26, lines 9-16), (i.e. periodic variable).

Accordingly, it would have been obvious for one ordinary skill in the art to improve the chain wheel system discussed in applicant admission by Yutkowitz in order to control the chain wheel since Yutkowitz system will run the chain wheel in a stable manner.

However, the combination of applicant admission and Yutkowitz fails to teach about a dampening actuating variable that includes a stochastic variable.

On the other hand, Bock et al teaches about a parametric control device that utilizes a stochastic variable in order to control a motor (column 10, lines 48-59).

Thus, it would have been obvious for one ordinary skill in the art to incorporate the stochastic variable into the combination of applicant admission and Yutkowitz system the motivation since a method that implements stochastic variable control is more robust and has increased adaptability in a continuously changing environment.

Regarding claim 18, Yutkowitz shows how the nominal rotary velocity  $V_c(S)$  (1, figure 1) (i.e. speed) of the machine movable part is supplied to the electronic damper as a first input variable and an actual angel (feedback signal 12, figure 1 and angle feedback figure 10) of the machine movable part as a second input variable, wherein the dampening actuating variable is computed in said electronic damper from the first and second input variables (3, figure 1), the



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dampening actuator variable being transferred to the electric motor in the form of dampened rotary velocity  $V(S)$  (14, figure 14).

Regarding claim 19 and 23, Yutkowitz discloses an apparatus that determines the actual angle of the movable part encoder (406, figure 10). In like manner of claim 20, the sensed angle is transmitted in pulse form.

Regarding claim 21, 24, and 26, the electronic damper of Yutkowitz is configured as a pilot control (column 23 lines 60-67, and column 24 lines 1-19).

Regarding claim 22, 25, and 27-29, Yutkowitz apparatus is configured to detect the beginning of a mechanical resonance and oscillation from the information gathered by the encoder (406)(column 27, lines 16-51), which is used to further select a suitable running condition (column 24, lines 32-58).

### **Conclusion**

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Refer to the attached PTO-892 form.

### **Remarks**

8. No claim is allowed.

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### **Correspondence**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elias B. Hiruy whose telephone number is 571-272-6105. The examiner can normally be reached on 7AM- 4:30PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on (571) 272-2107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EH  
04/28/2005



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